

IN THE CLAIMS

Claim 1 (currently amended). ~~Polyurethane-based A pressure-sensitive adhesive, characterized in that the polyurethane is composed of the following starting materials which are reacted catalytically with one another in the stated proportions comprising the product of the catalytic reaction of:~~

a) at least one aliphatic or alicyclic polyisocyanate having a functionality of in each case less than or equal to three,

b) a combination of at least one polypropylene glycol diol and at least one polypropylene glycol triol,

the ratio of the number of hydroxyl groups in the diol component to the number of hydroxyl groups in the triol component being less than 10; ~~preferably between 0.2 and 5,~~

~~additionally the ratio of the number of isocyanate groups to the total number of hydroxyl groups being between 0.8 and 1.15, preferably between 0.95 and 1.05, more preferably between 1.0 and 1.05,~~

~~the catalyst for the reaction to the polyurethane consisting of or comprising a bismuth carboxylate or bismuth carboxylate derivative, and~~

~~the diols and triols alternatively being selected and combined in each case as follows:~~

- diols having a molecular weight of less than or equal to 1000 are combined with triols whose molecular weight is greater than or equal to 1000, ~~preferably greater than or equal to 3000,~~
- diols having a molecular weight of greater than 1000 are combined with triols whose molecular weight is less than 1000.

Claim 2 (currently amended). Pressure-sensitive adhesive according to Claim 1, ~~characterized in that the wherein said at least one aliphatic or alicyclic~~

~~polyisocyanates are diisocyanates, especially diisocyanates having in each case an asymmetrical molecular structure.~~

Claim 3 (currently amended) Pressure-sensitive adhesive according to Claim 1 or 2, characterized in that the wherein said polyisocyanate is selected from the group consisting of butane 1,4-diisocyanate, tetramethoxybutane 1,4-diisocyanate, hexane 1,6-diisocyanate, ethylene diisocyanate, 2,2,4-trimethylhexamethylene diisocyanate, ethylethylene diisocyanate, dicyclohexylmethane diisocyanate, 1,4-diisocyanatocyclohexane, 1,3-diisocyanatocyclohexane, 1,2-diisocyanatocyclohexane, 1,3-diisocyanatocyclopentane, 1,2-diisocyanatocyclopentane, 1,2-diisocyanatocyclobutane, 1-isocyanatomethyl-3-isocyanato-1,5,5-trimethylcyclohexane (isophorone diisocyanate), 1-methyl-2,4-diisocyanato-cyclohexane, 1,6-diisocyanato-2,2,4-trimethylhexane, 1,6-diisocyanato-2,4,4-trimethylhexane, 5-isocyanato-1-(2-isocyanatoeth-1-yl)-1,3,3-trimethylcyclohexane, 5-isocyanato-1-(3-isocyanatoprop-1-yl)-1,3,3-trimethylcyclohexane, 5-isocyanato-1-(4-isocyanatobut-1-yl)-1,3,3-trimethylcyclohexane, 1-isocyanato-2-(3-isocyanatoprop-1-yl)cyclohexane, 1-isocyanato-2-(2-isocyanatoeth-1-yl)cyclohexane, 2-heptyl-3,4-bis(9-isocyanatononyl)-1-pentylcyclohexane, norbornane diisocyanatomethyl, or a chlorinated aliphatic or alicyclic diisocyanates, brominated aliphatic or alicyclic diisocyanates, sulphur-containing aliphatic or alicyclic diisocyanates, or phosphorus-containing aliphatic or alicyclic diisocyanate and/or a derivatives thereof of the diisocyanates listed, especially dimerized or trimerized types, very preferably isophorone diisocyanate.

Claim 4 (currently amended). Pressure-sensitive adhesive according to ~~at least one of Claims 1 to 3, characterized in that~~ claim 1, wherein at least one of the said polypropylene glycols used has originated from a DMC catalyzed preparation process.

Claim 5 (currently amended). Pressure-sensitive adhesive according to ~~at least one of Claims 1 to 4, characterized in that~~ a claim 1, wherein said at least one polypropylene glycol triol is used which has been prepared by DMC catalysis.

Claim 6 (currently amended). Pressure-sensitive adhesive according to at least one of Claims 1 to 5, characterized in that claim 1, further comprising formulating ingredients such as selected from the group consisting of catalysts, ageing inhibitors (antioxidants), light stabilizers, UV absorbers, and rheological additives, and other auxiliaries and additives have been mixed in.

Claim 7 (currently amended). Process for preparing a the pressure-sensitive adhesive according to at least one of the preceding claims, where of claim 1, comprising

- a) charging a first vessel (A) is charged substantially with the a premixed polypropylene glycol component comprising a combination of at least one polypropylene glycol diol and at least one polypropylene glycol triol (polyol component) and charging a second vessel (B) is charged substantially with an isocyanate component comprising at least one aliphatic or alicyclic polyisocyanate having a functionality of less than or equal to three the isocyanate component , it being possible for the other formulating ingredients to have been mixed into these components beforehand in a standard mixing procedure, optionally also charging said first or second vessel, or both of said vessels, with one or more formulating ingredients selected from the group consisting of catalysts, ageing inhibitors (antioxidants), light stabilizers, UV absorbers and rheological additives,
- b) conveying the polyol component and the isocyanate component are conveyed via precision pumps through the a mixing head or mixing tube of a multi-component mixing and metering unit, where they are homogeneously mixed to mix them and so brought to reaction to form a reactive polyurethane composition,
- c) applying the reactive polyurethane composition chemically inter-reacting components mixed in this way are applied immediately thereafter to a sheet-like backing material which is preferably moving at constant speed,
- d) passing the backing material coated with the reactive polyurethane composition applied thereto is passed through a heating tunnel in which to cure the polyurethane composition cures to the form a pressure-sensitive adhesive,

e) finally winding the coated backing material is wound with the pressure-sensitive adhesive thereon up in a winding station.

Claim 8 (currently amended). Process for preparing a pressure-sensitive adhesive according to claim 7 at least one of the preceding claims, characterized in that wherein the preparation takes place without solvent.

Claim 9 (currently amended). Process for preparing a pressure-sensitive adhesive according to claim 7 at least one of the preceding claims, characterized in that, wherein the preparation takes place without addition of water.

Claim 10 (currently amended). Use of a pressure-sensitive adhesive according to at least one of the preceding claims for producing A self-adhesive articles comprising the pressure-sensitive adhesive of claim 1.

Claim 11 (currently amended). Use of a pressure-sensitive adhesive according to at least one of the preceding claims Method for the redetachable fastening without damage or residue of small articles having sensitive surfaces, made for example from polar plastic, glass or metal, particularly in magazines, newspapers, books, letters or to papers in general which comprises fastening said articles with the pressure-sensitive adhesive of claim 1.

Claim 12 (new). The pressure-sensitive adhesive of claim 1, wherein said ratio of the number of hydroxyl groups in the diol component to the number of hydroxyl groups in the triol component is between 0.2 and 5.

Claim 13 (new). The pressure-sensitive adhesive of claim 1, wherein said ratio of the number of isocyanate groups to the total number of hydroxyl groups is between 0.95 and 1.05.

Claim 14 (new). The pressure-sensitive adhesive of claim 1, wherein said ratio of the number of isocyanate groups to the total number of hydroxyl groups is between 1.0 and 1.05.

Claim 15 (new). The pressure-sensitive adhesive of claim 1, wherein said molecular weight of said triols which are combined with said diols having a molecular weight of less than or equal to 1000 is 3000.

Claim 16 (new). The pressure-sensitive adhesive of claim 2, wherein said diisocyanates are diisocyanates having asymmetrical molecular structures.

Claim 17 (new). The pressure-sensitive adhesive of claim 3, wherein said polyisocyanate is isophorone diisocyanate.

Claim 18 (new). The process of Claim 7, wherein said backing material to which said reactive polyurethane composition is applied is moving at constant speed during said application.

Claim 19(new). The method of claim 11, wherein said articles are selected from the group consisting of magazines, newspapers, books and letters.